

REMARKS

In the Office Action dated July 13, 2004, claims 1-4 were rejected under 35 U.S.C. §102(b) as being anticipated by Shiokawa et al. Claim 5 was stated to be allowable if rewritten in independent form.

By the present Amendment, the subject matter of claim 5 has been embodied in independent claim 1, and claim 1 and claims 2-4 depending therefrom are therefore submitted to be in condition for allowance.

Additionally, new independent claim 6 is submitted which is a combination of original claims 1 and 2, with the additional statement that the biasing force that is generated by the magnet arrangement is separate from the electromagnetic force that is generated by the electromagnetic force generator. Original claim 5 has been amended to now depend from new claim 6, and claims 7 and 8, corresponding to original claims 3 and 4, have been added, depending from claim 6 as well.

Although claim 2 was among the claims rejected based on Shiokawa et al, Applicants respectfully traverse that rejection for the following reasons, and submit that claim 6 and the claims depending therefrom are not anticipated by Shiokawa et al.

With regard to original claims 2-4, the Examiner in the Office Action stated "it is also considered inherent that during the movement of a magnetic component along further magnetic fields that are spaced apart, that natural biasing of forces occur to a lesser or greater degree dependent on the relative positions of the magnetic fields, thus meeting the terms of the claims."

Applicants respectfully disagree that this manner of operation is inherent in the structure disclosed in the Shiokawa et al reference.

Applicants acknowledge that the Shiokawa et al reference discloses the use of magnetic radial bearings 70 and 72 so as to provide non-contacting longitudinal movement of the valve rod 50 within a throughhole 52. Those magnetic radial bearings 70 and 72 are explicitly stated at column 3, line 43 of the Shiokawa et al reference to "stably" support the valve rod 50. This means that the magnetic bearings 70 and 72 must generate respective magnetic fields that act exclusively radially on the valve rod 50, so as to maintain it out of contact with the inner wall of the throughhole 52. If the combination of the magnetic bearings 70 and 72 produced a net force acting longitudinally on the valve rod 50, then the valve rod 50 would not be "stably" supported, as explicitly stated in the Shiokawa et al patent. Applicants therefore do not agree with the Examiner's statement that it is inherent that during movement of a magnetic component along spaced magnetic fields, a natural biasing of forces occurs to a lesser or greater degree dependent on the relative positions of the magnetic fields. It is entirely possible, and is clearly the case in the Shiokawa et al reference, that magnetic fields with canceling longitudinal forces can be generated, in which case there is no net longitudinal force acting on the valve rod 50, at any position thereof relative to the magnetic bearings 70 and 72.

Moreover, the Shiokawa et al reference makes clear that longitudinal movement of the valve rod 50 is exclusively accomplished by the operation of the actuator 54, as explained in the paragraph beginning at column 3, line 51

of the Shiokawa et al reference. In the description relating to longitudinal movement of the valve rod 50, there is no mention whatsoever of any role played by the magnetic radial bearings 70 and 72. If anything is inherent in the teachings of the Shiokawa et al reference, it is that the bearings 70 and 72 generate forces that act exclusively radially on the valve rod 50, as is clear from the nomenclature used to describe the bearings 70 and 72 (magnetic *radial* bearings).

Independent claim 6 not only states that the biasing accomplished by the magnetic arrangement is separate from the electromagnetic force, but also states that the magnet arrangement biases the shaft in a direction to regulate the degree of opening of the valve opening. There is no explicit teaching in the Shiokawa et al reference that any component therein other than the actuator 54 is able to regulate the degree of opening of the valve opening, and for the reasons discussed above, the radial magnetic bearings 70 and 72 do not inherently perform such a function.

The Shiokawa et al reference therefore does not disclose all of the elements of claim 6 as arranged and operating in that claim, and therefore does not anticipate claim 6 nor any of the claims depending therefrom. Moreover, since there is no teaching in the Shiokawa et al reference that the magnetic radial bearings 70 and 72 should or could produce anything other than a radial force on the valve rod 50, the subject matter of claim 6 and the claims depending therefrom would not have been obvious to a person of ordinary skill in the field of magnetically actuated valves based on the teachings of Shiokawa et al.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

Submitted by,

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